

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

SGE12BX 70L 35K ND DO101 AR12BX MW WF  
Nom. 12" Diam x 10" H, Open aperture

### Test Number

SP-00686\_1\_M-70L

### Test Date

The results contained in this report pertain only to this IES file.

### Summary of Results

#### Power

Input Watts	51 W
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#### Lumen Output

Output Lumens	5594
Efficacy	109.69 lm/W

#### Luminous Dimensions

0° - 180° Size	-0.97
90° - 270° Size	-0.97
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	0.39
Two luminaires, plane 90°	0.4
Four luminaires	0.41

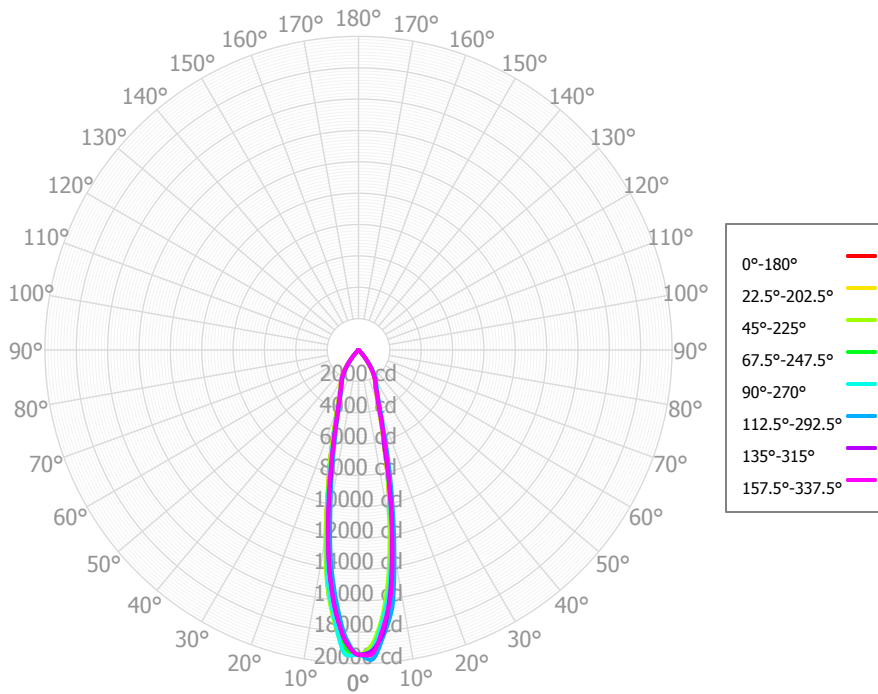
#### Full Beam Angle

0° - 180°	23°
90° - 270°	23°

### IES File Header Contents

Keyword	Value
TEST	SP-00686_1_M-70L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	6/7/2018
UPDATE	9/27/2019
LUMCAT	SGE12BX 70L 35K ND DO101 AR12BX MW WF
LUMINAIRE	Nom. 12" Diam x 10" H, Open aperture
OTHER	Matte White reflector trim
OTHER	Deep regressed retrofit high output LED downlight
OTHER	BX Series, Narrow Beam
OTHER	23.6 Deg Beam Angle
LAMPCAT	N/A
LAMP	N/A, Bridgelux Vero 29
OTHER	Dimmable driver tested at 100% output
OTHER	Tested CCT: 3500K
OTHER	CCT Output: 27K x 0.932, 30K x 1.00, 40K x 1.01
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting, scaled from 80L

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	1,486.48	26.57%	90.00° - 100.00°	0.07	0.00%
10.00° - 20.00°	1,839.88	32.89%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	1,252.89	22.40%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	855.03	15.28%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	156.28	2.79%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	1.46	0.03%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	0.75	0.01%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	0.67	0.01%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.64	0.01%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	5,594.08	100.00%	0.00° - 180.00°	5,594.14	100.00%

### Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°	202.50°	225.00°	247.50°	270.00°	292.50°	315.00°	330.00°
0.00°	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22	19,434.22
2.50°	19,078.94	19,013.71	18,866.42	19,221.93	19,173.81	18,384.63	18,647.29	18,615.21	19,102.66	18,788.97	19,211.57	19,050.54	19,443.92	19,774.56	19,227.22	19,434.22
5.00°	17,334.18	17,475.13	17,158.30	17,438.71	17,404.32	16,132.27	16,763.53	16,764.81	17,236.32	17,355.25	17,510.54	17,223.34	17,319.09	18,318.57	18,119.70	17,866.42
7.50°	14,886.61	14,989.23	14,581.69	15,275.80	15,107.60	13,510.08	14,191.03	14,244.50	15,098.92	14,672.33	15,236.15	14,667.88	14,955.68	16,563.10	15,540.89	15,107.60
10.00°	11,565.29	12,025.80	11,401.96	12,112.39	11,914.36	10,309.44	11,212.81	11,084.15	11,928.56	11,638.03	12,138.47	11,407.47	11,599.69	13,163.94	12,316.87	12,438.71
12.50°	8,750.11	8,835.06	8,716.53	9,006.35	9,101.84	7,744.55	8,110.71	8,449.24	8,926.24	8,935.79	8,939.23	8,694.02	8,532.20	9,940.75	9,308.10	9,114.36
15.00°	6,269.94	6,672.80	6,199.32	6,831.78	6,636.59	5,715.47	6,235.34	6,080.15	6,775.23	6,370.04	6,881.50	6,261.37	6,376.71	7,339.22	6,339.70	6,886.42
17.50°	4,757.00	4,720.95	4,783.76	4,947.90	5,038.30	4,427.14	4,541.36	4,726.46	4,982.84	5,005.25	5,007.74	4,827.62	4,677.17	5,261.51	4,965.76	4,886.42
20.00°	3,564.58	3,801.80	3,536.70	3,912.60	3,856.24	3,463.40	3,733.06	3,600.65	3,961.36	3,819.59	4,012.61	3,622.96	3,681.94	4,063.27	3,707.00	3,886.42
22.50°	3,002.88	2,975.56	3,025.97	3,131.88	3,222.53	2,957.67	3,024.41	3,098.85	3,214.88	3,206.01	3,197.37	3,084.47	3,014.33	3,239.06	3,101.71	3,066.42
25.00°	2,520.52	2,627.01	2,568.47	2,715.85	2,702.51	2,534.16	2,667.48	2,645.65	2,778.33	2,727.12	2,754.42	2,602.10	2,619.55	2,752.00	2,603.29	2,666.42
27.50°	2,284.05	2,301.35	2,322.81	2,394.16	2,448.36	2,284.37	2,349.41	2,400.24	2,462.43	2,457.94	2,408.19	2,362.76	2,338.09	2,433.03	2,347.48	2,286.42
30.00°	2,018.78	2,031.33	2,039.14	2,146.46	2,185.47	2,019.26	2,095.65	2,134.50	2,219.61	2,170.39	2,167.41	2,095.07	2,105.61	2,193.68	2,062.72	2,086.42
32.50°	1,646.74	1,706.96	1,686.89	1,812.30	1,838.35	1,669.59	1,782.38	1,815.12	1,910.91	1,867.44	1,852.89	1,751.31	1,744.11	1,853.48	1,743.31	1,726.42
35.00°	1,268.42	1,313.65	1,309.54	1,443.93	1,477.79	1,302.43	1,416.19	1,458.46	1,583.14	1,510.17	1,495.27	1,388.89	1,360.02	1,492.81	1,379.38	1,386.42
37.50°	879.04	936.01	907.70	1,051.01	1,084.31	895.65	1,024.43	1,051.83	1,184.16	1,129.21	1,118.32	1,001.13	979.11	1,102.04	987.10	977.00
40.00°	544.17	568.96	567.66	656.51	707.25	544.77	620.75	680.80	785.65	748.44	736.03	647.98	613.42	724.71	652.43	606.42
42.50°	260.09	310.00	259.18	361.88	351.19	259.88	350.00	335.54	455.26	368.05	435.71	320.25	329.90	435.48	335.89	354.00
45.00°	107.03	87.82	114.16	106.90	142.73	100.82	105.57	150.66	177.22	185.31	159.24	143.05	112.21	195.76	171.32	132.00
47.50°	19.37	34.55	7.14	44.05	34.79	21.80	49.09	24.29	71.09	28.34	69.82	21.70	41.79	77.70	29.89	56.00
50.00°	2.83	1.41	2.29	1.90	4.62	2.34	2.47	5.82	4.98	12.47	1.90	4.82	3.07	9.23	13.67	3.40
52.50°	1.58	1.33	1.05	2.32	1.18	1.29	1.66	1.48	2.49	1.44	1.44	1.98	1.35	3.37	1.00	1.72
55.00°	1.48	1.27	1.08	2.14	0.77	0.99	1.23	1.31	1.17	1.33	1.11	1.32	0.73	0.94	0.83	0.70
57.50°	1.35	1.26	1.15	1.30	0.69	0.75	1.75	1.14	0.85	1.13	0.99	0.78	0.81	0.83	0.74	0.42
60.00°	0.87	1.14	1.35	1.13	0.61	0.60	1.68	0.94	0.64	0.83	0.87	0.70	0.79	0.74	0.79	0.33
62.50°	0.61	0.80	1.23	1.36	0.59	0.53	0.88	0.75	0.49	0.73	0.76	0.59	0.74	0.66	0.76	0.47
65.00°	0.90	0.78	0.67	1.07	0.84	0.69	0.52	0.55	0.71	0.75	0.75	0.42	0.98	0.96	0.68	0.57
67.50°	0.88	1.08	0.54	0.65	0.91	0.67	0.46	0.57	1.00	0.61	0.79	0.35	1.20	1.26	0.80	0.53
70.00°	0.46	1.32	0.73	0.66	0.65	0.35	0.56	0.80	0.88	0.41	0.52	0.38	0.82	0.98	1.01	0.46
72.50°	0.39	1.52	0.65	0.67	0.52	0.38	0.72	0.67	0.74	0.64	0.26	0.60	0.63	0.68	0.69	0.43
75.00°	0.53	1.01	0.50	0.59	0.49	0.64	0.72	0.44	0.55	0.72	0.37	0.85	0.85	0.33	0.44	0.62
77.50°	0.63	0.70	0.46	0.50	0.88	0.76	0.56	0.87	0.49	0.42	0.52	0.49	1.11	0.76	0.67	0.57
80.00°	0.62	0.73	0.58	0.51	0.75	0.72	0.32	0.91	0.58	0.38	0.62	0.42	1.12	1.11	0.47	0.37
82.50°	0.55	0.41	0.61	0.80	0.55	0.61	0.63	0.76	0.88	0.48	0.32	0.46	0.66	0.66	0.38	0.40
85.00°	0.54	0.70	0.49	0.70	0.90	0.53	0.88	0.73	0.89	0.84	0.33	0.47	0.44	0.33	0.41	0.93
87.50°	0.75	0.63	0.46	0.56	0.54	0.64	0.51	0.46	0.69	0.50	0.80	0.47	0.61	0.55	0.51	0.66
90.00°	0.67	0.13	0.18	0.12	0.71	0.77	0.35	0.61	0.27	0.87	0.11	0.83	0.49	0.18	0.68	0.73
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	<b>pfc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
<b>RCR</b>	<b>0</b>	6,660	6,660	6,660	6,660	6,505	6,505	6,505	6,505	6,216	6,216	6,216	5,951	5,951	5,951	5,708	5,708	5,594
	<b>1</b>	6,400	6,266	6,146	6,038	6,265	6,146	6,040	5,943	5,922	5,838	5,761	5,716	5,651	5,590	5,527	5,476	5,368
	<b>2</b>	6,145	5,913	5,722	5,562	6,026	5,819	5,646	5,500	5,642	5,502	5,380	5,479	5,366	5,267	5,328	5,238	5,137
	<b>3</b>	5,901	5,599	5,365	5,179	5,796	5,524	5,310	5,138	5,382	5,204	5,057	5,251	5,103	4,980	5,129	5,008	4,914
	<b>4</b>	5,669	5,316	5,058	4,861	5,576	5,255	5,017	4,833	5,141	4,938	4,777	5,034	4,862	4,723	4,935	4,790	4,703
	<b>5</b>	5,449	5,061	4,790	4,590	5,367	5,011	4,759	4,570	4,917	4,699	4,531	4,830	4,641	4,493	4,748	4,585	4,455
	<b>6</b>	5,243	4,830	4,553	4,354	5,169	4,789	4,529	4,340	4,711	4,482	4,312	4,638	4,437	4,284	4,569	4,394	4,257
	<b>7</b>	5,048	4,619	4,341	4,146	4,982	4,585	4,322	4,136	4,519	4,285	4,115	4,458	4,250	4,095	4,400	4,216	4,075
	<b>8</b>	4,866	4,427	4,151	3,961	4,807	4,398	4,136	3,953	4,342	4,106	3,938	4,290	4,078	3,922	4,241	4,050	3,907
	<b>9</b>	4,696	4,251	3,978	3,794	4,642	4,226	3,966	3,788	4,178	3,942	3,777	4,134	3,919	3,765	4,091	3,897	3,754
	<b>10</b>	4,536	4,089	3,822	3,644	4,488	4,068	3,812	3,639	4,027	3,792	3,630	3,988	3,773	3,621	3,951	3,755	3,612

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	642.5 fc	2.3 ft
6.5 ft	460.0 fc	2.7 ft
7.5 ft	345.5 fc	3.1 ft
8.0 ft	303.7 fc	3.3 ft
10.0 ft	194.3 fc	4.1 ft
12.0 ft	135.0 fc	4.9 ft
14.0 ft	99.2 fc	5.7 ft
16.0 ft	75.9 fc	6.6 ft
20.0 ft	48.6 fc	8.2 ft
24.0 ft	33.7 fc	9.8 ft
28.0 ft	24.8 fc	11.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	283,077	283,077	283,077
<b>45.00°</b>	2,205	2,352	2,940
<b>55.00°</b>	38	27	20
<b>65.00°</b>	31	23	29
<b>75.00°</b>	30	28	27
<b>85.00°</b>	90	81	151

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	-24.1	-23.2	-23.7	-22.9	-22.6	-25.9	-25.0	-25.6	-24.7	-24.4
	<b>3H</b>	-21.5	-20.7	-21.1	-20.4	-20.0	-22.9	-22.1	-22.5	-21.7	-21.4
	<b>4H</b>	-20.4	-19.7	-20.0	-19.3	-18.9	-21.2	-20.5	-20.8	-20.1	-19.7
	<b>6H</b>	-19.0	-18.3	-18.6	-17.9	-17.5	-18.2	-17.5	-17.8	-17.2	-16.8
	<b>8H</b>	-18.3	-17.6	-17.8	-17.3	-16.8	-17.4	-16.7	-16.9	-16.3	-15.9
	<b>12H</b>	-17.3	-16.7	-16.9	-16.3	-15.9	-16.4	-15.8	-15.9	-15.4	-14.9
<b>4H</b>	<b>2H</b>	-23.7	-22.9	-23.2	-22.6	-22.2	-25.2	-24.4	-24.8	-24.1	-23.7
	<b>3H</b>	-20.3	-19.7	-19.9	-19.3	-18.9	-22.3	-21.7	-21.9	-21.3	-20.9
	<b>4H</b>	-18.8	-18.3	-18.4	-17.9	-17.4	-20.0	-19.5	-19.6	-19.1	-18.6
	<b>6H</b>	-17.4	-17.0	-16.9	-16.5	-16.0	-17.1	-16.7	-16.6	-16.2	-15.7
	<b>8H</b>	-16.7	-16.3	-16.2	-15.8	-15.4	-16.2	-15.7	-15.7	-15.3	-14.8
	<b>12H</b>	-15.6	-15.2	-15.1	-14.7	-14.2	-15.0	-14.7	-14.5	-14.2	-13.7
<b>8H</b>	<b>4H</b>	-18.5	-18.0	-18.0	-17.6	-17.1	-19.5	-19.1	-19.0	-18.6	-18.1
	<b>6H</b>	-16.8	-16.5	-16.3	-16.0	-15.5	-16.6	-16.2	-16.1	-15.7	-15.2
	<b>8H</b>	-16.0	-15.7	-15.4	-15.2	-14.7	-15.4	-15.1	-14.9	-14.6	-14.1
	<b>12H</b>	-14.3	-14.0	-13.7	-13.5	-12.9	-14.1	-13.8	-13.5	-13.3	-12.7
<b>12H</b>	<b>4H</b>	-18.3	-17.9	-17.8	-17.4	-17.0	-19.3	-19.0	-18.8	-18.5	-18.0
	<b>6H</b>	-16.6	-16.3	-16.0	-15.8	-15.3	-16.4	-16.1	-15.9	-15.6	-15.1
	<b>8H</b>	-15.6	-15.4	-15.1	-14.9	-14.3	-15.2	-14.9	-14.6	-14.4	-13.8

Corrected UGR values based on total output lumens

SHR = 1.0